

Notes on the form and habitat of nests of the Northern Shrike-tit

Simon J. Ward, Mani Berghout and Bryan Baker

Department of Natural Resources, Environment, The Arts and Sport,
PO Box 496, Palmerston, NT 0831. Email: simon.ward@nt.gov.au

Introduction

The Northern Shrike-tit *Falcunculus frontatus whitei* is currently considered one of three subspecies of the Crested Shrike-tit (Christidis & Boles 2008). It is patchily distributed in the Top End of the Northern Territory (NT) and the Kimberley Region of Western Australia (WA), but there are relatively few records for the subspecies and it is listed as 'Vulnerable' nationally under the *Environment Protection and Biodiversity Conservation Act*, and in the Northern Territory under the *Territory Parks and Wildlife Conservation Act*. In WA, it is listed under Schedule 1 – "Fauna that is rare or is likely to become extinct". Robinson and Woinarski (1992) found 21 records from 16 localities for the species in the NT and seven from the Kimberley prior to the date of their publication. The NT Fauna Atlas (a database held by the NT Department of Natural Resources, Environment, The Arts and Sport (NRETAS)) contains 28 records for the subspecies, from about 22 sites in the NT (to July 2007). Two of these records are of nesting shrike-tits, both from the Borroloola region almost a century ago from collections by H.G. Barnard in January 1914 (Barnard 1914; White 1914). Other nests have been seen by bird-watchers both in the NT (S. Keates, pers. comm.) and the Kimberley (G. Swann, pers. comm.), but there is no published description. Here we report on the features of nests of Northern Shrike-tits found in the Maranboy area, approximately equidistant between Katherine and Mataranka, near where the subspecies was previously recorded by Holmes and Noske (1990).

Methods

Northern Shrike-tits were typically located after hearing their calls. In some cases this was aided by broadcasting the call (Plowright 2007) to elicit calls or attract birds closer to the observer. Birds were then followed to record foraging, tree use and ranging behaviours, and in some cases the bird led the observer to a nest. Observations were aided by the use of binoculars. In one case, an abandoned nest was found by chance during a visual search for shrike-tits. More intensive observations of birds at the nest (for periods of between 1 h and 24 h) were made at three nests using a spotting scope (Kowa; x25), by an observer in a chair about 25 m from the base of the nest tree.

The height above the ground of most nests and/or nest trees was calculated using trigonometry – either measuring the angle from observer up to the nest (clinometer

$\pm 1^\circ$) and the distance of the observer from the base of the tree (or point directly below the nest; tape measure ± 0.1 m), or using a stick held in front of the observer to transpose the height of the tree to a length on the ground, at right angles to the line from observer to the tree, that was measured with a tape measure (± 0.1 m). The height of a nest that was collected was calculated by measuring the length of a weighted piece of cord dropped from the nest to the ground (tape measure ± 0.1 m).

Observations

In a search for shrike-tits in the Maranboy area in July 2007, one bird was seen and followed for about 30 minutes, but no breeding was apparent. We returned to the area in October 2007 and located a bird, and subsequently a nest, approximately 200 m (and on the opposite side of a bitumen road) from our sighting in July. Another nest, apparently unused, was found in a large tree approximately 120 m away. At this time another pair of Northern Shrike-tits was located 2.2 km away and was observed mating; the female bird was observed collecting what we believe was nesting material – fibrous bark material from subterminal branches of a box eucalypt tree. We subsequently found a nest in the vicinity of this pair in early December 2007. In October 2008 we found an occupied nest 40 m from the first 2007 nest (presumed to be the same pair) and, 460 m away in an adjacent territory, another pair was constructing a nest. One month later (November 2008), the former nest was abandoned and another was being constructed 220 m away; the pair in the adjacent territory was still constructing its nest.

In all six cases the nests were in eucalypt trees (*Eucalyptus*, *Corymbia*) and located in some of the top-most branches, within 10-15 cm of the edge of the crown (see inset Figure 1a). Details of the trees in each case are given in Table 1.

The abandoned nest found in October 2007 (A2, Table 1) was collected and has been lodged with the Museum and Art Gallery Northern Territory (NTMT3512). The nest is cup-shaped and constructed of fibrous bark and grass held together, particularly on the outside, by spider-web (Figure 1). The bark fibres and grass are densely matted, giving the nest a golden colour, and the walls incorporate two or three living branchlets which support the nest. The branchlets immediately above the nest had been snipped off within 10-15 cm of the top of the nest. During construction of another nest the male was seen using its beak to remove branchlets below the level of the nest so that leaves and twigs did not project over the nest bowl. The nest cup (34 mm diameter, 38 mm deep; Figure 1b) was big enough for one adult bird to sit in with eggs/chicks below.

The habitat around these nests was open woodland dominated by round-leaved bloodwood *Corymbia latifolia*, Darwin box *Eucalyptus tectifica*, large-leaved cabbage gum *C. grandifolia* and Cooktown ironwood *Erythrophloeum chlorostachys*, with a canopy height of 14-16 m (Figure 2). There were also scattered trees of weeping box *Eucalyptus*

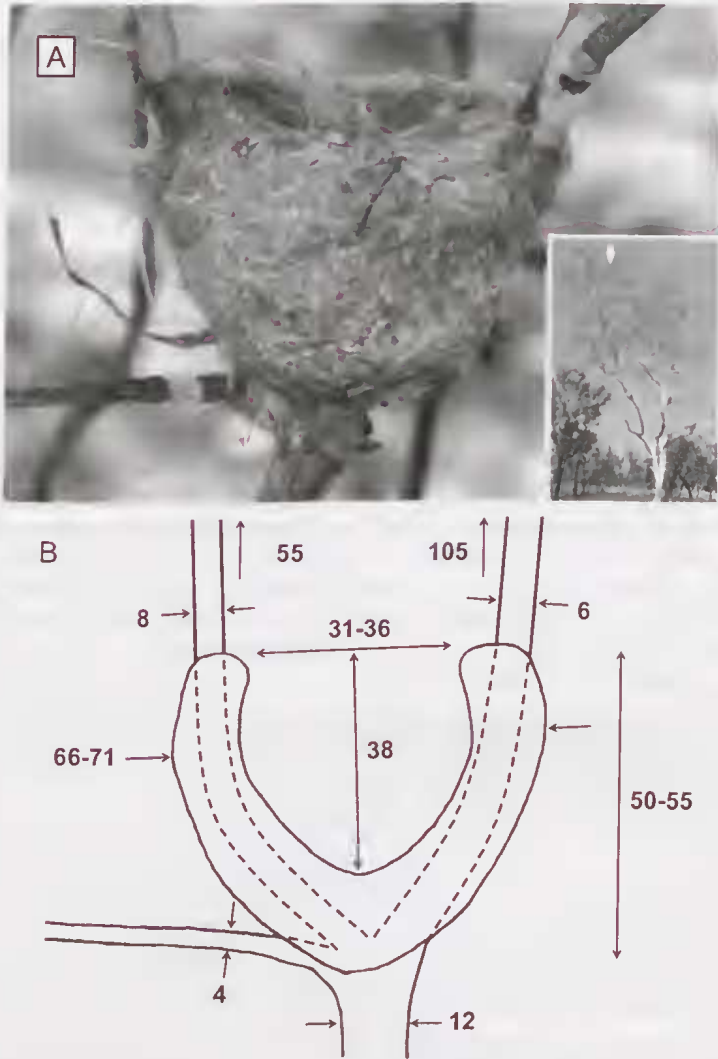


Figure 1. Nest of a Northern Shrike-tit *Falculculus frontatus whitei* from the Katherine Region of the Northern Territory: A. habitus (inset depicts nest tree *Corymbia grandifolia* with arrow showing location of nest, at the very top of the canopy); B. diagrammatic cross-section showing various dimensions (in millimetres), or ranges of measurements; numbers at the top show lengths (in millimetres) of two protruding branchlets. Photos and measurements were taken from an abandoned nest (MAGNT; NTMT3512).

patellaris, Darwin stringybark *Eucalyptus tetrodonta*, rusty bloodwood *C. umbonata* and *Acacia pallidifolia*. These were the only species in the immediate area that reached more than 2 m height. The undergrowth was very sparse with the ground covered in some areas by a variety of grasses (e.g. *Sorghum*, *Chrysopogon*, *Heteropogon*, *Aristida*) with leaf-litter predominating, though most of the area had been burnt earlier in the year (F. Piercc, pers. comm.). Termite mounds with a height to about 1 m were scattered across the area.

Table 1. Details of trees in which nests of Northern Shrike-tits *Falcunculus frontatus whitei* were found. Nests were seen in three territories (A, B & C). Nest no. refers to the order in which nests were found and described in text. DBH is the diameter-at-breast-height.

Territory code & nest no.	Date of observation	Tree species	Height (m)	DBH (cm)	Notes
A1	Oct. 2007	<i>Eucalyptus tectifica</i>	16.0	31	incubating
A2	Oct. 2007	<i>Corymbia grandifolia</i>	15.7	52	abandoned
C3	Dec. 2007	<i>Corymbia latifolia</i>	14.0	37	nestlings failed
A4	Oct. 2008	<i>E. tectifica</i>	13.7	27	incubating
	Nov. 2008				abandoned
B5	Oct. 2008	<i>E. tectifica</i>	13.4	27	constructing
	Nov. 2008				constructing
A6	Nov. 2008	<i>C. grandifolia</i>	15.9	29	constructing

In October 2007, the majority of *E. tectifica* trees had largely (if not solely) new foliage (including the tree with the active nest); many individuals of *C. grandifolia* also had new leaves or leaf buds and most carried very abundant flower buds. Hence the nests and attendant birds were very exposed. By December, most trees had some leaves on them but were not in full leaf. In October 2008, trees in this woodland generally had more foliage than was apparent the previous year.

Observations at the first nest (A1) during all daylight hours on 17 and 25 October 2007 found one or other of the nesting pair sitting on the nest at all times, except when chasing off intruders; hence, we presume that at this time the birds were incubating eggs. Ten days later, on 4 November, there was still an adult at the nest at all times (N. McCrie, pers. comm.), but on 20 November the nest was abandoned and adults were feeding a fledgling in a tree about 100 m from the nest-site. The other active nest (C3) was watched for several hours on 3 and 4 December 2007 and the pair appeared to be feeding chicks, though chicks were not seen or counted.

Nest construction was observed briefly at nest B5 in October 2008. The nest was well-formed when first found, probably more than 80% complete. During just over

two hours of observations, both the female and the male of the pair were seen in and around the nest, both calling frequently, but the female appeared to have the dominant role in nest construction. She was seen bringing fibrous material and bark to the nest, as well as tufts of white fluff – presumed to be spider-web or similar. One time she brought a tightly-woven cocoon to the nest and picked at it to unravel the thread and lay it into the nest. The male was seen collecting bark from the fine branches of a Darwin box tree in November 2008, and rolling and plucking it to produce fibres. He also did a small amount of construction.



Figure 2. Habitat around the nest of Northern Shrike-tits *Falcunculus frontatus whitei* in the Katherine Region of the Northern Territory, October 2007.

Frequency of calling was much greater in the months when nests were observed (October – December) than in July when no calls were heard from more than 50 minutes of observations (H. McGregor & S. Ward, pers. obs.), or one brief call in response to playback from several hours of searching interspersed with playbacks (F. Pierce, pers. comm.). We found playback using the recordings in Plowright (2007) of the Northern Shrike-tit very useful in locating birds in October to December and in March.

Discussion

Clearly, data from more than three pairs at one locality are needed to define the variability in nest form and habitat that occurs in a species. The nests described here are similar in form to nests reported for shrike-tits near Borroloola, NT (White 1914), and in southern and eastern Australia (Higgins & Peter 2002), but are a little smaller. In comparison to the dimensions collated in Table 1 of Higgins and Peter (2002), the internal dimensions measured from our Northern Shrike-tit nest are at the lower limit of the range, or smaller, and the external dimensions are smaller than those measured previously. The position of the nest in the tree, high in the top-most branches, agrees with that reported elsewhere (Barnard 1914; White 1914; Higgins & Peter 2002). Richard Noske (pers. comm.) observed a female shrike-tit completing a nest in the Maningrida area of western Arnhem Land, c. 300 km north of our study site, in October 2008 (at the same time as we found nest numbers A4 and B5 in this study). The nest was c. 15 cm from the top of a paperbark (*Melaleuca viridiflora*) which was only 6 m high, and not in a eucalypt. The female was seen adding new material to the nest three times during a period of c. 10 minutes, while the very vocal male watched and called from as close as 2 m away.

The pairs of Northern Shrike-tits that made the nests described in this paper were actively nesting, or preparing to nest, in October and December in both 2007 and 2008, and R. Noske (pers. comm.; see above) also witnessed nest building in the Maningrida area during October. Barnard (1914) collected eggs from two nests near Borroloola in January 1914 (White 1914). In one case a chick was just hatching at the time of collection (Barnard 1914). In the Kimberley, Hill (1911) suspected birds to be nesting in early October, but could not locate the nest. There is a nest record for late November and an anomalous one for March (Birds Australia nest record scheme and Storr 1980, cited in Higgins & Peter 2002). It is apparent from these records that nesting of Northern Shrike-tits is concentrated in the build-up (October – December), which coincides with greatest insect activity (M.F. Braby pers. comm.), consistent with its breeding season in south-eastern Australia (Noske 2003), and may continue through the wet season to March. However, in view of the lack of breeding records beyond January in other parts of Australia (Higgins & Peter 2002; Noske 2003), and the dearth of calls during January in the Maningrida region (R. Noske, pers. obs.), late wet season breeding seems unlikely. The first pair described in this note (A1) was also seen mating in December, whilst still feeding a fledgling. Subsequent observations in January and March detected no re-nesting by the pair. Subsequent observations of the pair at nest C3 suggest that their nesting attempt failed: no fledgling was observed and there was no re-nesting attempt that season. It remains to be determined how many clutches are typically raised by a pair each year, and to what extent breeding occurs at other times of year. The evidence for multibroodedness in this species is weak and is confounded by its unusually long period of parental care (Noske 2003).

Our observations all came from a relatively small area of eucalypt woodland south of Katherine. Most recent reports for the subspecies in the NT have come from the Katherine region (including this area; Fauna Atlas NRETAS), probably because the area is relatively accessible and is known in birding circles as a place to search for the subspecies (e.g. McCrie & Watson 2003). Much still remains to be known about the distribution and habitat preferences and requirements of shrike-tits in northern Australia. However, we hope that this brief note provides an impetus for other reports and descriptions of the nesting behaviour of this poorly known subspecies.

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References

- Barnard H.G. (1914) Northern Territory birds. *Emu* 14, 39-57.
- Christidis L. and Boles W.E. (2008) *Systematics and Taxonomy of Australian Birds*. CSIRO Publishing, Melbourne.
- Higgins P.J. and Peter J.M. (eds) (2002) *Handbook of Australian, New Zealand and Antarctic Birds. Volume 6: Pardalotes to shrike-thrushes*. Oxford University Press, Melbourne.
- Hill G.F. (1911) Field notes on the birds of the Kimberley, North-west Australia. *Emu* 10, 258-290.
- Holmes G. and Noske R.A. (1990) New locality records of birds in Arnhem Land and Southern Gulf of Carpentaria. *Northern Territory Naturalist* 12, 13-42.
- McCrie N. and Watson J. (2003) *Finding Birds in Darwin, Kakadu and the Top End*. Niven McCrie, Casuarina.
- Noske R.A. (2003) Does the crested shrike-tit *Falcunculus frontatus* exhibit extended parental care? *Corella* 27, 118-119.
- Plowright H. (ed.) (2007) *A Field Guide to Australian Birdsong, CD8 Jacky Winter to Grey Shrike-thrush*. Bird Observers Club of Australia, Melbourne.
- Robinson D. and Woinarski J.C.Z. (1992) A review of records of the northern shrike-tit *Falcunculus frontatus whitei* in northwestern Australia. *South Australian Ornithologist* 31, 111-117.
- White H.L. (1914) Descriptions of new Australian birds' eggs. *Emu* 14, 57-59.